

Title (en)  
Field effect transistor.

Title (de)  
Feldeffekttransistor.

Title (fr)  
Transistor à effet de champ.

Publication  
**EP 0323158 A2 19890705 (EN)**

Application  
**EP 88312218 A 19881222**

Priority  
JP 32987587 A 19871228

Abstract (en)  
A semiconductor field effect transistor is provided which permits controlling of the phase of carriers between a source region and a drain region formed in a first semiconductor layer. Such control can be used to modulate characteristics such as the electric conductivity and drain current of the transistor. To accomplish this control, a gate electrode (1) is formed over a portion of the first semiconductor layer (7) between the source and drain regions (8). The gate electrode (1) splits to form first and second branches at a first location adjacent to the source region. These first and second branches subsequently rejoin one another at a second location adjacent to said drain region. When a potential is applied to the gate electrode (1) it will produce first and second two-dimensional carrier conduction paths at a surface of the portion of the first semiconductor layer (7) under the first and second branches. An arrangement is provided for modifying the phase of carriers passing through the first conduction path relative to the phase of carriers passing through the second conduction path to produce a phase difference for carriers received at the drain region through said first and second conduction paths.

IPC 1-7  
**H01L 29/10**; **H01L 29/76**; **H01L 29/80**

IPC 8 full level  
**H01L 29/205** (2006.01); **H01L 21/338** (2006.01); **H01L 29/66** (2006.01); **H01L 29/778** (2006.01); **H01L 29/78** (2006.01); **H01L 29/80** (2006.01); **H01L 29/812** (2006.01)

CPC (source: EP KR)  
**B82Y 10/00** (2013.01 - EP); **H01L 29/66977** (2013.01 - EP); **H01L 29/76** (2013.01 - KR); **H01L 29/7831** (2013.01 - EP); **H01L 29/8124** (2013.01 - EP)

Cited by  
EP0434234A3

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
**EP 0323158 A2 19890705**; **EP 0323158 A3 19890823**; **EP 0323158 B1 19930113**; DE 3877548 D1 19930225; DE 3877548 T2 19930513; JP 2550375 B2 19961106; JP H01173656 A 19890710; KR 890011111 A 19890812; KR 910009036 B1 19911028

DOCDB simple family (application)  
**EP 88312218 A 19881222**; DE 3877548 T 19881222; JP 32987587 A 19871228; KR 880017432 A 19881224